

Title (en)
ENHANCED VAPOR INJECTION HEAT PUMP AIR CONDITIONING SYSTEM AND ELECTRIC VEHICLE COMPRISING HEAT PUMP AIR CONDITIONING SYSTEM

Title (de)
WÄRMEPUMPEN-KLIMAANLAGE MIT VERBESSERTER DAMPFINJEKTION UND ELEKTROFAHRZEUG MIT WÄRMEPUMPEN-KLIMAANLAGE

Title (fr)
SYSTÈME AMÉLIORÉ DE CLIMATISATION À POMPE À CHALEUR À INJECTION DE VAPEUR ET VÉHICULE ÉLECTRIQUE ÉQUIPÉ D'UN SYSTÈME DE CLIMATISATION À POMPE À CHALEUR

Publication
EP 3705323 A1 20200909 (EN)

Application
EP 18874781 A 20181101

Priority
• CN 201711057911 A 20171101
• CN 2018113257 W 20181101

Abstract (en)
Provided are an enhanced vapor injection heat pump air-conditioning system and an electric vehicle comprising the heat pump air-conditioning system. The heat pump air-conditioning system comprises a compressor (1), a first condenser (3), a first heat exchanger (6), a first expansion valve (7) and a second condenser (9) which are connected end to end in sequence, wherein the first heat exchanger (6) comprises a first channel (61) and a second channel (62), a first end of the first channel (61) is in communication with the first condenser (3), and a second end of the first channel (61) is in communication with the first expansion valve (7); and a first end of the second channel (62) is in communication with the first condenser (3) through a second expansion valve (8), and a second end of the second channel (62) is in communication with the compressor (1). The temperature of a coolant entering the second channel (62) is lower than that of the coolant in the first channel (61) due to the decompression and vaporization effects of the second expansion valve (8). Therefore, when the coolant in the first channel (61) flows through the compressor (1) again, the temperature of the compressor (1) can be prevented from being too high, so that the heat pump air-conditioning system can heat even below -10°C to supply hot air to the interior of the electric vehicle.

IPC 8 full level
B60H 1/00 (2006.01); **F25B 41/31** (2021.01)

CPC (source: CN EP US)
B60H 1/00278 (2013.01 - EP US); **B60H 1/00392** (2013.01 - CN EP); **B60H 1/00921** (2013.01 - EP); **B60H 1/3223** (2013.01 - EP); **F25B 30/02** (2013.01 - CN); **B60H 2001/00307** (2013.01 - EP); **B60H 2001/00957** (2013.01 - EP); **F25B 6/02** (2013.01 - EP)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3705323 A1 20200909; **EP 3705323 A4 20210825**; **EP 3705323 B1 20230111**; CN 107757298 A 20180306; CN 107757298 B 20210323; TW 201923287 A 20190616; TW I696790 B 20200621; TW M580521 U 20190711; WO 2019085956 A1 20190509

DOCDB simple family (application)
EP 18874781 A 20181101; CN 201711057911 A 20171101; CN 2018113257 W 20181101; TW 107138847 A 20181101; TW 107214911 U 20181101